

### FEATURES

- Ideally suited for automatic insertion
- For switching and AF amplifier applications



### MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

| Symbol           | Parameter                                   | Value    | Unit |
|------------------|---|----------|------|
| V <sub>CB0</sub> | Collector-Base Voltage                      | BC846    | 80   |
|                  |   | BC847    | 50   |
|                  |   | BC848    | 30   |
| V <sub>CEO</sub> | Collector-Emitter Voltage                   | BC846    | 65   |
|                  |   | BC847    | 45   |
|                  |   | BC848    | 30   |
| V <sub>EBO</sub> | Emitter-Base Voltage                        | 6        | V    |
| I <sub>C</sub>   | Collector Current –Continuous               | 0.1      | A    |
| P <sub>C</sub>   | Collector Power Dissipation                 | 200      | mW   |
| R <sub>θJA</sub> | Thermal Resistance From Junction To Ambient | 625      | °C/W |
| T <sub>J</sub>   | Junction Temperature                        | 150      | °C   |
| T <sub>stg</sub> | Storage Temperature                         | -55~+150 | °C   |

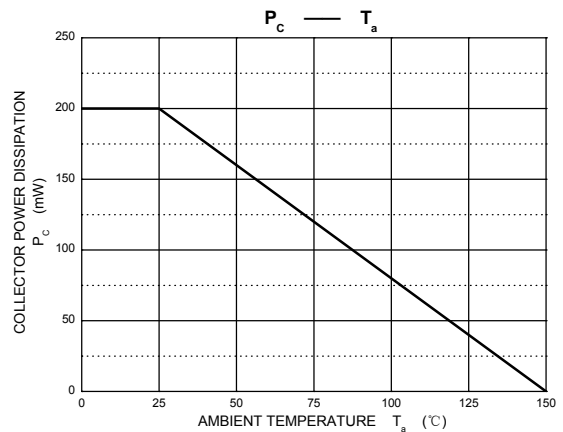
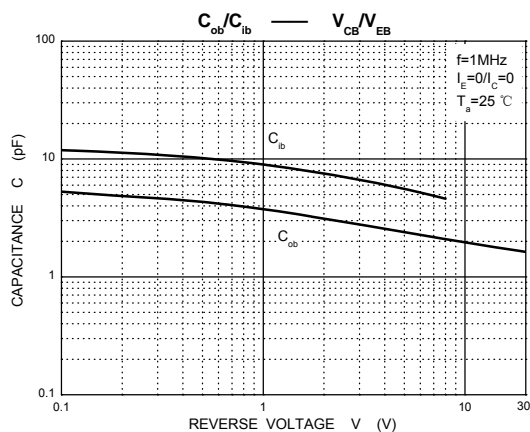
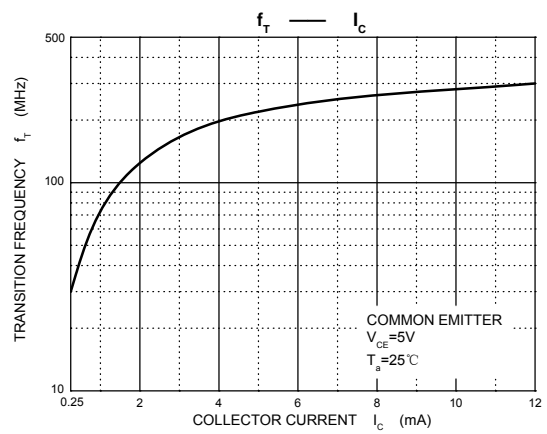
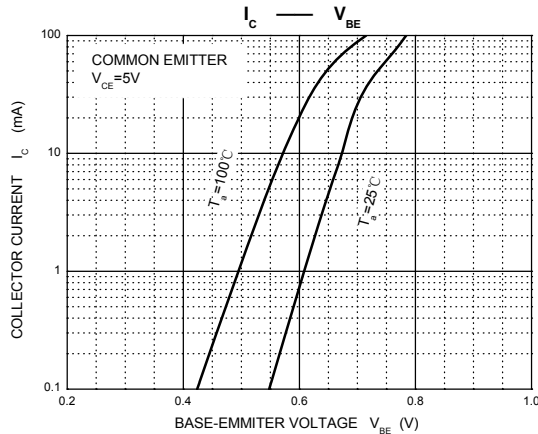
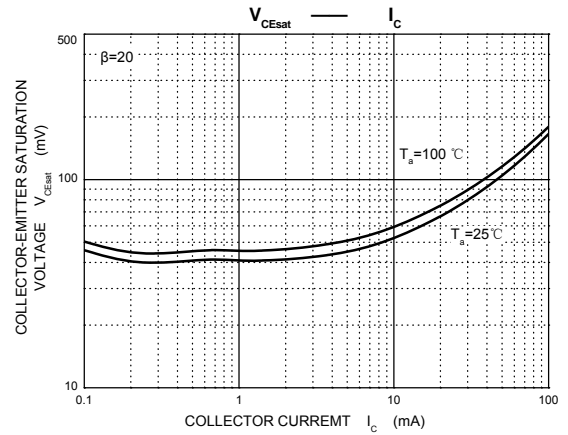
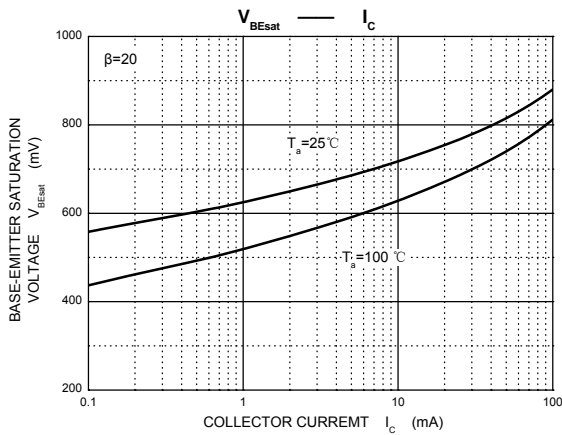
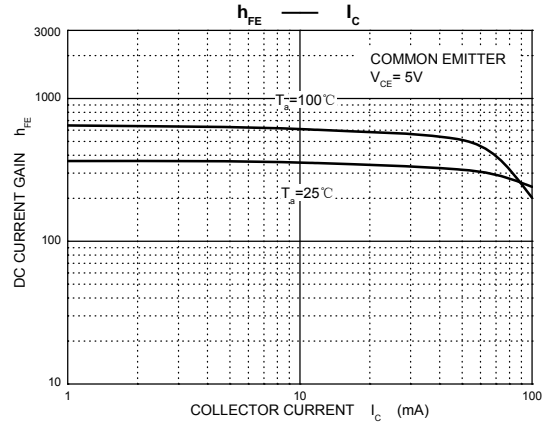
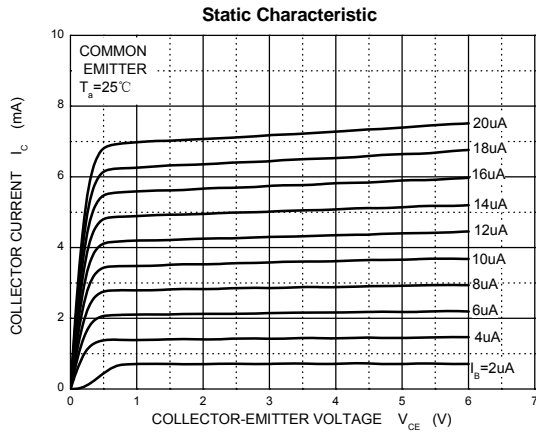
### DEVICE MARKING

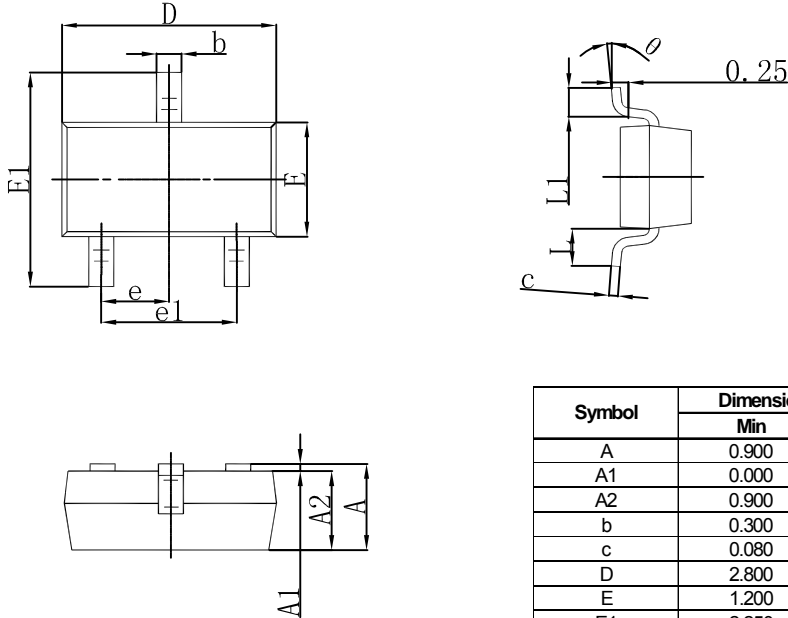
BC846A=1A; BC846B=1B;  
 BC847A=1E; BC847B=1F; BC847C=1G;  
 BC848A=1J; BC848B=1K; BC848C=1L

**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)**

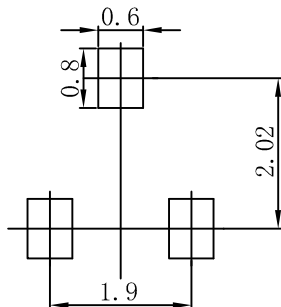
| Parameter                            | Symbol               | Test conditions  | Min  | Typ | Max | Unit |  |
|--------------------------------------|----------------------|--|--|-----|-----|------|--|
| Collector-base breakdown voltage     | BC846                | I <sub>C</sub> = 10μA, I <sub>E</sub> =0                 | 80   |     |     | V    |  |
|                                      | BC847                |  | 50   |     |     |      |  |
|                                      | BC848                |  | 30   |     |     |      |  |
| Collector-emitter breakdown voltage  | BC846                | I <sub>C</sub> = 10mA, I <sub>B</sub> =0                 | 65   |     |     | V    |  |
|                                      | BC847                |  | 45   |     |     |      |  |
|                                      | BC848                |  | 30   |     |     |      |  |
| Emitter-base breakdown voltage       | V <sub>EBO</sub>     | I <sub>E</sub> = 10μA, I <sub>C</sub> =0                 | 6  |     |     | V    |  |
| Collector cut-off current            | BC846                | I <sub>CBO</sub>   | V <sub>CB</sub> =70 V, I <sub>E</sub> =0   |     | 0.1 | μA   |  |
|                                      | BC847                |  | V <sub>CB</sub> =50 V, I <sub>E</sub> =0   |     |     |      |  |
|                                      | BC848                |  | V <sub>CB</sub> =30 V, I <sub>E</sub> =0   |     |     |      |  |
| Collector cut-off current            | BC846                | I <sub>CEO</sub>   | V <sub>CE</sub> =60 V, I <sub>B</sub> =0   |     | 0.1 | μA   |  |
|                                      | BC847                |  | V <sub>CE</sub> =45 V, I <sub>B</sub> =0   |     |     |      |  |
|                                      | BC848                |  | V <sub>CE</sub> =30 V, I <sub>B</sub> =0   |     |     |      |  |
| Emitter cut-off current              | I <sub>EBO</sub>     | V <sub>EB</sub> =5 V, I <sub>C</sub> =0                  |  |     | 0.1 | μA   |  |
| DC current gain                      | BC846A,847A,848A     | h <sub>FE</sub>  | V <sub>CE</sub> = 5V, I <sub>C</sub> = 2mA | 110 |     | 220  |  |
|                                      | BC846B,847B,848B     |  |  | 200 |     | 450  |  |
|                                      | BC847C,BC848C        |  |  | 420 |     | 800  |  |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =100mA, I <sub>B</sub> = 5mA              |  |     | 0.5 | V    |  |
| Base-emitter saturation voltage      | V <sub>BE(sat)</sub> | I <sub>C</sub> =100mA, I <sub>B</sub> = 5mA              |  |     | 1.1 | V    |  |
| Transition frequency                 | f <sub>T</sub>       | V <sub>CE</sub> = 5 V, I <sub>C</sub> = 10mA<br>f=100MHz | 100  |     |     | MHz  |  |
| Collector output capacitance         | C <sub>ob</sub>      | V <sub>CB</sub> =10V,f=1MHz                              |  |     | 4.5 | pF   |  |

### Typical Characteristics



**SOT-23 Package Outline Dimensions**


| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.050 | 0.035                | 0.041 |
| b      | 0.300                     | 0.500 | 0.012                | 0.020 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 2.800                     | 3.000 | 0.110                | 0.118 |
| E      | 1.200                     | 1.400 | 0.047                | 0.055 |
| E1     | 2.250                     | 2.550 | 0.089                | 0.100 |
| e      | 0.950 TYP                 |       | 0.037 TYP            |       |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.550 REF                 |       | 0.022 REF            |       |
| L1     | 0.300                     | 0.500 | 0.012                | 0.020 |
| θ      | 0°                        | 8°    | 0°                   | 6°    |

**SOT-23 Suggested Pad Layout**

**Note:**

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

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